

Appl. No. 10/605,416  
Amdt. dated May 02, 2005  
Reply to Office action of April 12, 2005

**Amendments to the Specification:**

Please replace paragraph [0020] [0022] and [0027], with the following amended paragraph:

[0020] The main difference between the color LCD 31 of the present invention and the  
5 conventional transmissive color LCD 11 is that the color LCD 31 uses a predetermined  
mask pattern design including a plurality of matrix or interlaced patterns to reduce a  
resolution of the patterns and also uses the restriction of photo resist due to the reduced  
resolution to form a plurality of recess structures with either uniform size or non-uniform  
size on surfaces of the color filters 23R, 23G, 23B during a development process. And, the  
10 recess structures comprise the convex structures and valley structures. Therefore, the  
transmittance of the color filters 23R, 23G, 23B is increased, and the brightness of the  
color LCD 31 is effectively improved.

[0022] Additionally, the color filters with recess structures of the present invention can  
15 also be applied to a reflective or a transreflective color LCD. A reflective color LCD 51 is  
provided as a second embodiment of the present invention, as shown in Fig.4. The  
reflective color LCD 51 comprises a lower glass substrate 49, an upper glass substrate 42  
positioned parallel to and above the lower glass substrate 49, and a plurality of pixel units  
45 positioned between the lower glass substrate 49 and the upper glass substrate 42. Each  
20 of the pixel units 45 includes a red color filter 43R, a green color filter 43G, or a blue  
color filter 43B, and an upper transparent electrode 44, a liquid crystal layer 46, a lower  
transparent electrode 48, and a reflection layer 47. An exposed portion of the surfaces of  
the upper glass substrate 42 and the lower glass substrate 49 respectively includes an  
upper polarizer 41 and a lower polarizer 50. The reflective color LCD 51 further  
25 comprises a plurality of thin film transistors (not shown in Fig.4) for controlling the pixel  
units 45. A plurality of recess structures are formed on surfaces of the color filters so as to  
increase the transmittance of the color filters and further improve the brightness and  
regulate the color deepness of the color LCD 51. And, the recess structures comprise the

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convex structures and valley structures.

[0027] The color LCD provided by the present invention comprises color filters with recess structures. And, the recess structures comprise the convex structures and valley  
5 structures. Consequently, the transmittance of the color filters can be effectively increased, which results in an improvement of brightness of the LCD, and a color deepness of the color LCD can be regulated. Comparing to a prior art color LCD, the problem of a non-uniform cell gap caused by forming holes in the color filters can be prevented. For a transfective color LCD, the recess structures of the present invention can be formed only  
10 on surfaces of reflective regions of the color filters so as to reduce a difference in brightness and color deepness occurred between the reflective region and the transmissive region of the same pixel unit. Furthermore, because the color filters with recess structures are able to scatter light, a diffusing layer of the transfective LCD can be omitted, and a cost of the transfective LCD is substantially reduced.

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